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HONDA/FENWICK SILICON VALLEY CENTER 801 CALIFORNIA STREET MOUNTAIN VIEW, CA 94041			EXAMINER JOHNSON, EDWARD M	
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/727,699  
Filing Date: December 03, 2003  
Appellant(s): HARUTYUNYAN, AVETIK

\_\_\_\_\_  
Narinder Banait  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 12/18/08 appealing  
from the Office action mailed 12/18/07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

4,663,230	TENNENT	5-1987
6,221,330	MOY	4-2001

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

**A. Claims 1-3, 5, 7-8, 10-18, 38-39, and 41-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tennent US 4,663,230.**

Regarding claims 1 and 38, Tennent '230 discloses a method for making nano-sized carbon fibers comprising providing a catalyst nanoparticle (abstract) and exposing to carbon containing gas to form fibers (abstract). Tennent further discloses alumina support (column 3, lines 52-55).

Tennent '230 fails to disclose entraining in inert gas and 0.5-5  $\mu\text{m}$ .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to entrain in inert gas

because Tennent discloses the contacting may be carried out in the presence of hydrogen (column 4, lines 4-5) and Tennent discloses 0.2 and 15 microns (Example 1, "materials"), which would at least suggest a range of 0.5-5  $\mu\text{m}$ .

Regarding claims 2-3 and 39, Tennent discloses iron.

Regarding claim 5, Tennent discloses 3.5 nm (column 3, lines 49-51).

Regarding claims 6-8 and 41, Tennent discloses alumina support (column 3, lines 52-55).

Regarding claims 9 and 42, Tennent discloses 0.2 and 15 microns (Example 1), which at least suggest an optimum size including 0.5-5 microns, achieved through routine experimentation.

Regarding claim 10, Tennent discloses hydrogen (column 4, lines 4-5).

Regarding claims 11, 14-16, 43-44, and 47-48, Tennent discloses argon (Examples 5 and 7).

Regarding claims 12-13 and 45-46, Tennent discloses methane (column 5, lines 18-30).

Regarding claims 17-18 and 49, Tennent discloses 900 degrees C (Example 10).

**B. Claims 4 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tennent '230 as applied to claims 2 and 38 above, and further in view of Moy et al. US 6,221,330.**

Regarding claims 4 and 40, Tennent fails to disclose molybdenum.

Moy '330 discloses molybdenum (column 3, lines 56-62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the molybdenum of Moy in the process for making nano-sized carbon fibers of Tennent because Moy discloses the molybdenum as a preferred catalyst (summary) in a process for making carbon nanotubes using metal catalysts (abstract). Moy further discloses single wall nanotubes (abstract).

#### **(10) Response to Argument**

It is argued that this rejection is clearly in error... an inert gas is not used to entrain the supported catalyst.

This is not persuasive because it would have been obvious to one of ordinary skill in the art at the time the invention was made to entrain the catalyst in inert gas because Tennent discloses the contacting may be carried out in the presence of hydrogen (column 4, lines 4-5) and Tennent discloses 0.2 and 15 microns (Examples, "materials").

It is argued that Tennent at column 6... aluminum silicates. This is not persuasive because Tennent discloses 0.2 and 15 microns (Examples, "materials"), which would at least suggest the size of a "powdered" product, as claimed.

It is argued that the Examiner, at page 4... range of 0.5-5  $\mu\text{m}$ . This is not persuasive because Applicant asserts that the claimed size is applied to the "catalyst on the powered oxide support." However, the actual claim reads "a powered oxide substrate having a particle size of 0.5  $\mu\text{m}$  to 5  $\mu\text{m}$ ." Clearly, the instantly claimed substrate, and not the "catalyst" thereon, is specified as having the claimed particle size. It is noted that the features upon which applicant relies (i.e., a "catalyst" having a particular size, rather than the substrate) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is argued that the Examiner acknowledges that Tennent fails... in inert gas. This is not persuasive because Applicant appears to admit that hydrogen gas is disclosed and Applicant also claims hydrogen gas (instant claim 10) as a specific version of the claimed inert gas. A recitation of the intended use of the claimed invention must result in a structural

difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is argued that further, a person of skill in the art... an inert gas. This is not persuasive because it would have been obvious to one of ordinary skill in the art at the time the invention was made to entrain the nano-sized particles of Tennent in inert gas because Tennent discloses the contacting may be carried out in the presence of hydrogen (column 4, lines 4-5).

It is argued that finally, the independent claims... single-walled carbon nanotubes. This is not persuasive because Applicant appears to admit that nano-sized carbon fibers are disclosed, which would at least suggest, to an ordinarily skilled artisan, single walled nanotubes.

It is argued that the rejection is clearly in error because the Moy reference... applicant in his invention. This is not persuasive because Moy does not "teach away" from combining the teachings therein with the broad teachings of Tennent since Moy nowhere specifically teaches that the Tennent reference should be avoided. Applicant appears to equate the teaching of unsupported catalysts to a teaching that Tennent should be



avoided. This appears dubious, though the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the molybdenum of Moy in the process for making nano-sized carbon fibers of Tennent because Moy discloses the molybdenum as a preferred catalyst (summary) in a process for making carbon nanotubes using metal catalysts (abstract). Moy further discloses single wall nanotubes (abstract).

It is argued that Moy at column 2, lines 65-67... nanotube formed therefrom. This is not persuasive because Appellant appears to equate the teaching of unsupported catalysts to a teaching that Tennent should be avoided. However, it would have been within the purview of ordinarily skilled artisan at the time the invention was made to use the molybdenum of Moy independently of the support disclosed in Moy with a reasonable expectation of achieving a favorable result.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Edward M. Johnson

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